

Three Phase Full Controlled Bridges with freewheeling diode

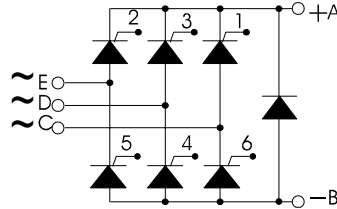
PSFT 70

I_{dAV} = 70 A
 V_{RRM} = 400-1600 V

Preliminary Data Sheet

V_{RSM} V_{DSM}	V_{RRM} V_{DRM}	Type
500	400	PSFT 70/04
900	800	PSFT 70/08
1300	1200	PSFT 70/12
1500	1400	PSFT 70/14
*1700	*1600	PSFT 70/16

* Delivery on request



Symbol	Test Conditions		Maximum Ratings	
I_{dAV}	$T_C = 85^\circ C$	per module	70	A
I_{TSM}	$T_{VJ} = 45^\circ C$	$t = 10 \text{ ms}$ (50 Hz), sine	550	A
	$V_R = 0$	$t = 8.3 \text{ ms}$ (60 Hz), sine	600	A
	$T_{VJ} = T_{VJM}$	$t = 10 \text{ ms}$ (50 Hz), sine	500	A
	$V_R = 0$	$t = 8.3 \text{ ms}$ (60 Hz), sine	550	A
$\int i^2 dt$	$T_{VJ} = 45^\circ C$	$t = 10 \text{ ms}$ (50 Hz), sine	1520	$A^2 s$
	$V_R = 0$	$t = 8.3 \text{ ms}$ (60 Hz), sine	1520	$A^2 s$
	$T_{VJ} = T_{VJM}$	$t = 10 \text{ ms}$ (50 Hz), sine	1250	$A^2 s$
	$V_R = 0$	$t = 8.3 \text{ ms}$ (60 Hz), sine	1250	$A^2 s$
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$	repetitive, $I_T = 50 \text{ A}$	150	$A/\mu s$
	$f = 50 \text{ Hz}$, $t_p = 200 \mu s$			
	$V_D = 2/3 V_{DRM}$			
$(dv/dt)_{cr}$	$I_G = 0.3 \text{ A}$	non repetitive, $I_T = 1/2 I_{dAV}$	500	$A/\mu s$
	$di_G/dt = 0.3 \text{ A}/\mu s$			
	$T_{VJ} = T_{VJM}$	$V_{DR} = 2/3 V_{DRM}$	1000	$V/\mu s$
P_{GM}	$R_{GK} = \infty$, method 1 (linear voltage rise)			
	$T_{VJ} = T_{VJM}$	$t_p = 30 \mu s$	≤ 10	W
P_{GAVM}	$I_T = I_{TAVM}$	$t_p = 500 \mu s$	≤ 5	W
			0.5	W
V_{RGM}			10	V
T_{VJ}			-40 ... + 125	$^\circ C$
T_{VJM}			125	$^\circ C$
T_{stg}			-40 ... + 125	$^\circ C$
V_{ISOL}	50/60 HZ, RMS	$t = 1 \text{ min}$	2500	V ~
	$I_{ISOL} \leq 1 \text{ mA}$	$t = 1 \text{ s}$	3000	V ~
M_d	Mounting torque	(M5)	2 - 2.5	Nm
Weight	typ.		100	g

Features

- Package with fast-on terminals
- Isolation voltage 3000 V~
- Planar glasspassivated chips
- Low forward voltage drop
- UL registered E 148688

Applications

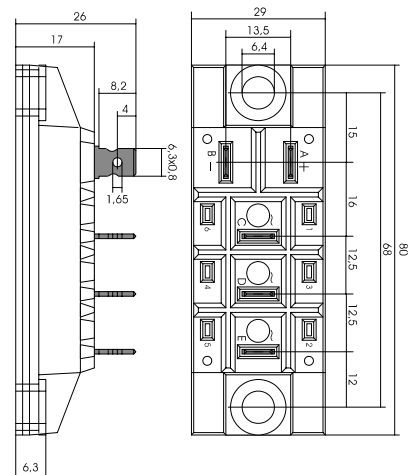
- Heat and temperature control for industrial furnaces and chemical processes
- Lighting control
- Motor control
- Power converter

Advantages

- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling capability
- High power density

Package, style and outline

Dimensions in mm (1mm = 0.0394")



Symbol	Test Conditions	Characteristic Value			
I _D , I _R	T _{VJ} = T _{VJM} , V _R = V _{RRM} , V _D = V _{DRM}	≤	5	mA	
V _T	I _T = 80A, T _{VJ} = 25°C	≤	1.64	V	
V _{TO}	For power-loss calculations only (T _{VJ} = T _{VJM})		0.85	V	
r _T			11	mΩ	
V _{GT}	V _D = 6V	T _{VJ} = 25°C	≤	1.5	V
		T _{VJ} = -40°C	≤	1.6	V
I _{GT}	V _D = 6V	T _{VJ} = 25°C	≤	100	mA
		T _{VJ} = -40°C	≤	200	mA
V _{GD}	T _{VJ} = T _{VJM}	V _D = 2/3 V _{DRM}	≤	0.2	V
I _{GD}	T _{VJ} = T _{VJM}	V _D = 2/3 V _{DRM}	≤	5	mA
I _L	T _{VJ} = 25°C, t _p = 10μs	≤	450	mA	
	I _G = 0.45A, di _G /dt = 0.3A/μs				
I _H	T _{VJ} = 25°C, V _D = 6V, R _{GK} = ∞	≤	200	mA	
t _{gd}	T _{VJ} = 25°C, V _D = ½ V _{DRM}	≤	2	μs	
	I _G = 0.45A, di _G /dt = 0.45A/μs				
t _q	T _{VJ} = T _{VJM} , I _T = 20A, t _p = 200μs, V _R = 100V		250	μs	
	-di/dt = 10A/μs, dv/dt = 15V/μs, V _D = 2/3 V _{DRM}				
R _{thJC}	per thyristor; sine 180°el		0.9	K/W	
	per module		0.15	K/W	
R _{thJK}	per thyristor; sine 180° el		1.1	K/W	
	per module		0.183	K/W	
d _S	Creeping distance on surface		16.0	mm	
d _A	Creeping distance in air		7.6	mm	
a	Max. allowable acceleration		50	m/s ²	

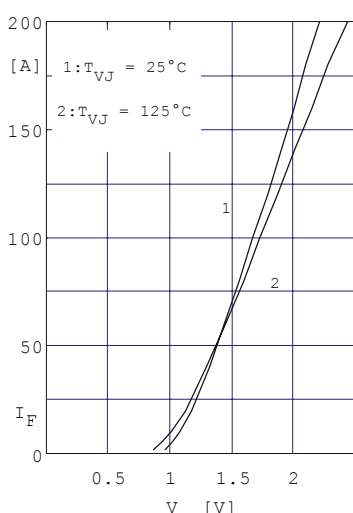


Fig. 1 Forward current vs. voltage drop per diode or thyristor

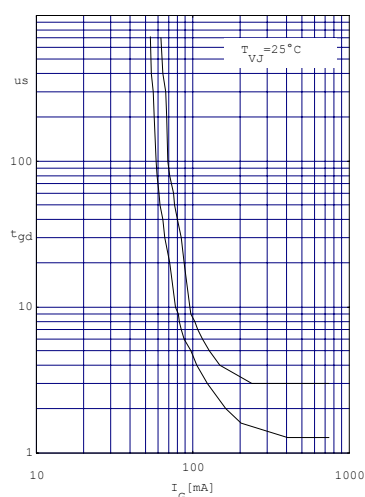


Fig. 2 Gate trigger delay time

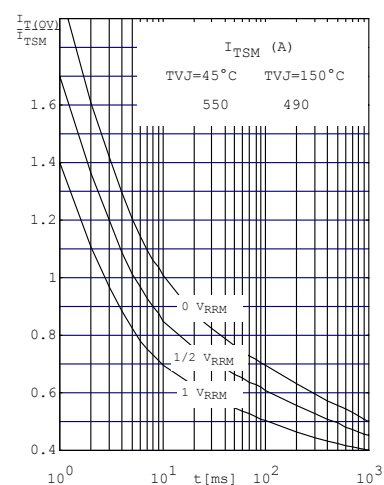


Fig. 3 Surge overload current per diode (or thyristor) I_{FSM} , I_{TSM} : Crest value t : duration

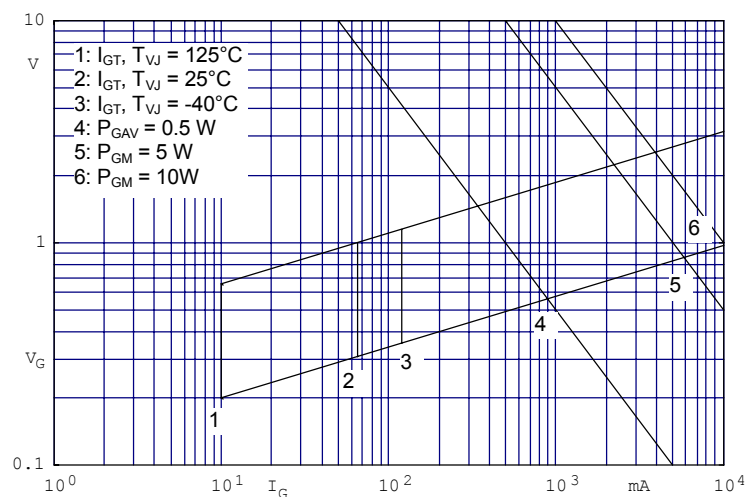


Fig.4 Gate trigger characteristic

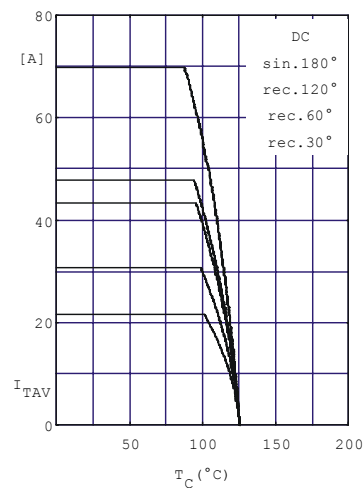


Fig.5 Maximum forward current at case temperature

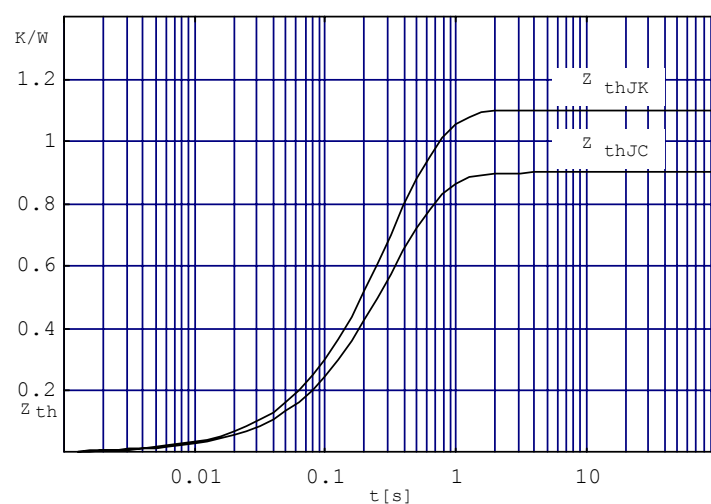


Fig.6 Transient thermal impedance per thyristor or diode

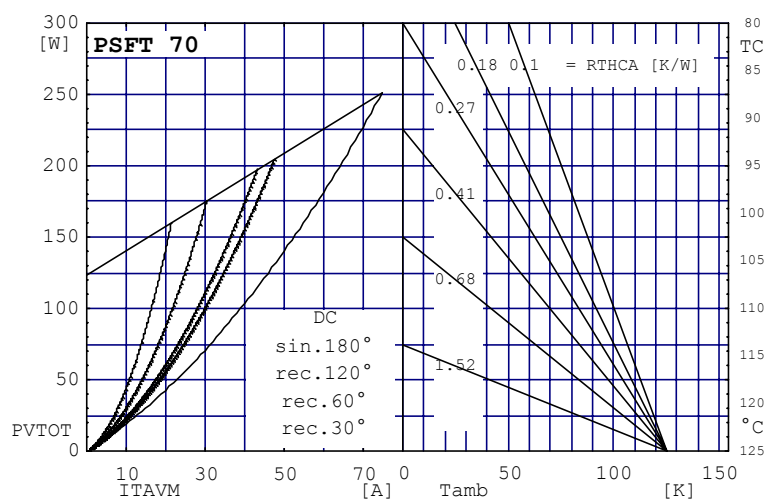


Fig. 7 Power dissipation vs. direct output current and ambient temperature